

Pest and diseases

Treatment and protocols at
Frisia Flora Ghs Ltd

Clean starts at Propagation

Mother stock needs to clean and grown with proper climate and nutritional program. Cuttings in the picture never should have been send by supplier.



Before cuttings go on the bench

- Bench disinfected
- Bench or table has proper drainage
- Substrate and trays are clean and have proper soil mix/structure
- Water trays thoroughly before sticking
- We use prefilled trays with rooting cubes like Ellegaard or other
- Water treatment with chlorine dioxide injection

Sticking cuttings

- Cuttings should be fully turgent
- If wilted, cuttings are stored in moist towels in Styrofoam box overnight (5C)
- A wilted cutting doesn't root
- Undersized cuttings discard

Fungal diseases in propagation and potted production

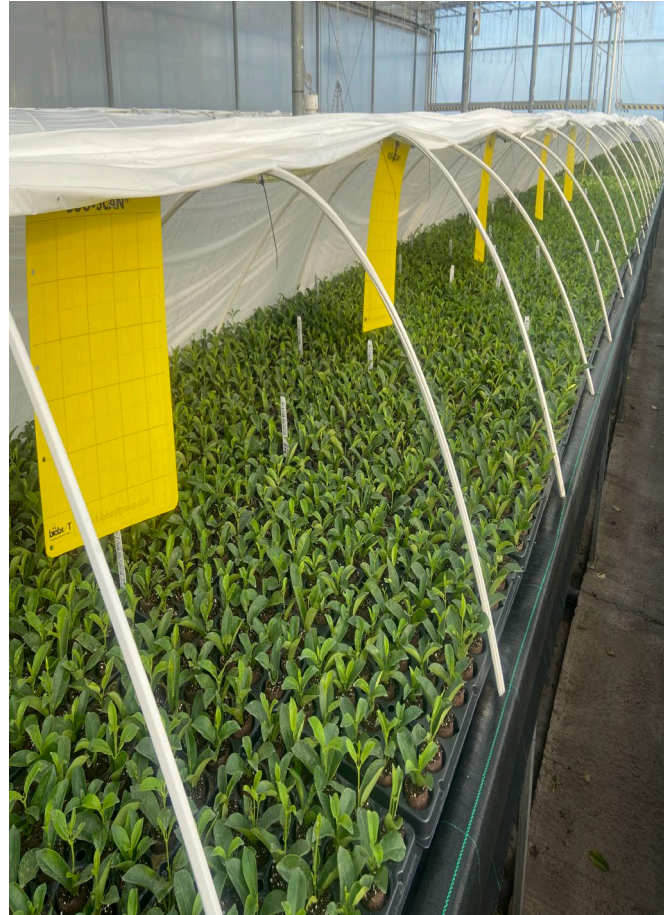
- Leafspots (Septoria mainly in hot/humid conditions)
- Pythium root rot: roots stressed by either and/or high salts, high ph (in **peat substrate**) extreme dry/wet cycle. (Thielaviopsis/Rhizotonia)
- Phytophthora extremely wet and or wet/dry cycles
- Fusarium wilt. Mainly in roots (my experience) when bad the whole plant wilts and dies.

Prevention and or treatment

- Provide proper conditions as mentioned
- Use biofungicides with for example *Bacillus subtilis* (Serenade). These products suppress for example *Botrytis*, *Rhizoctonia* and *Pythium*.
- Use Mycorrhizal Bio-stimulants like Biocult and Rootshield.
Protection against *Pythium*, *Phytophthora*, *Fusarium*, *Rhizoctonia* etc
- Copper spray like Cueva against *Septoria* (low copper content)
- If needed chemical treatment

Pest control and prevention

These cuttings were dipped in a *Beauveria bassiana* (myco-Insecticide) solution to control Certain pests possibly present in this Of shore shipment.



Pestcontrol is biocontrols first

- Weekly scouting
- Bio control strategies involve multiple insects and fungi
- Some of the weekly introductions are:
- Aphidius spp for Aphid control
- Neoseiulus mites (californicus and cucumeris) for mite and thrip control
- Orius minute pirate bug for thrip control
- Stratiolaelaps and Atheta for gnat and thirp larvae
- Phytoseiulus for mite control
- Ephestia eggs, Typha (bullrush) pollen and other food for beneficial mites and others.
- Dicyphus on Mullein bankers for Whitefly
- Encarsia for whitefly
- And more.. And more
- \$0.80-\$1– per ft² per year!!!

Does this apply to your field crop?

- Healthy starting material is half the battle
- Most insect problems outdoors gets taken care off by nature?
- Applying beneficial soil organisms like Mycorrhizae at field planting?

Make sure your plants get watered properly before planting.

Place your trays or pots on a well drained surface in sunny location

Water preferably in the morning, soil should be wetted all the way through.

Note: Rain does not equal a watering ... check the soil in the pots

Feed with a general purpose fertilizer to get started. Once established feed according to soil sample analysis and recommendations from specialist.

Lavender does not like hot roots!